Paper No. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte RONALD PAUL GEE and BURT MICHAEL WROLSON

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Appeal No. 2003-0941
Application No. 09/797,296

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ON BRIEF

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Before OWENS, PAWLIKOWSKI and MOORE, **Administrative Patent Judges**.

PAWLIKOWSKI, **Administrative Patent Judge**.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claim 1-3 and 6-8. A copy of claim 1 is set forth below:

> 1. A method of removing volatile siloxanes from an aqueous emulsion containing siloxane polymers and volatile siloxanes comprising contacting the aqueous emulsion with a hydrophobic pervaporation membrane.

On page 3 of the Brief, appellants state that the claims stand or fall together. We therefore consider claim 1 in this appeal, the broadest claim on appeal 37 CFR § 1.192(7) and (8)(2000).

Claims 1-3 and 6-8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Traver in view of McGlothlin or over Traver and Hatch in view of McGlothlin.

The examiner relies upon the following references as evidence of unpatentability:

Hatch et al. (Hatch)	2,834,754	May 13, 1958
Traver et al. (Traver)	4,600,436	Jul. 15, 1986
McGlothlin et al. (McGlothlin)	6,075,073	Jun. 13, 2000

OPINION

I. The Examiner's Position

As an initial matter, on pages 5-6 of the answer, the examiner discusses the combination of Traver and Hatch in view of McGlothin. The examiner basically relies upon Hatch for teaching that organopolysiloxanes are volatile and for teaching their removal by gas stripping and kneading. We believe Hatch is cumulative with respect to the teachings of Traver, and therefore do not need to discuss this reference in making our determinations herein.

The examiner states that Traver teaches a process of preparing emulsions containing aminofunctional silicones. Answer, page 3. The examiner states that Traver teaches that the principal starting material could be a cyclic polysiloxane or a linear diorganosiloxane that is derived from a cyclic polysiloxanes. Traver prefers the cyclic polysiloxane, octamethylcyclotetrasiloxane. The examiner states that the cyclic polysiloxane such as octamethylcyclotetrasiloxane, are

volatile in nature. Answer, page 3. Appellants do not dispute this finding of fact.

The examiner states that Traver teaches that improved film forming properties are imparted to the emulsions if the cyclic polysiloxanes are stripped from the emulsion prepared by the above process, and suggests stripping of the emulsion to remove the cyclic polysiloxanes. Answer, pages 3-4.

The examiner states that Traver differs from appellants' claims in the manner in which the cyclic polysiloxanes are removed from the emulsion. The examiner states that Traver teaches stripping of the cyclic polysiloxanes, rather than removing them by pervaporation as claimed. Answer, page 4.

The examiner relies upon McGlothlin for teaching selective removal of hydrocarbons from aqueous emulsions using pervaporation membranes. The examiner states that McGlothlin teaches that pervaporation membrane technique is applicable for removing solvents from a variety of elastomeric polymers prepared by solution polymerization. The examiner states that McGlothlin teaches that conventional methods of removing solvents, i.e., gas stripping or steam stripping, have drawbacks. The examiner states that McGlothlin suggests a variety of membranes for the process, including the same kinds of membranes used by appellants, and therefore, the membranes taught by McGlothlin are hydrophobic in nature. Answer, page 4.

The examiner also states that McGlothlin teaches a variety of polymerized emulsions, including silicones, from which the solvents can be removed by pervaporation membrane (col. 8, lines 35-68). The examiner states that McGlothlin suggests removing a variety of solvents such as aliphatic, saturated, unsaturated and cyclic, including volatile hydrocarbons (col. 9, lines 1-10). Answer, page 4.

The examiner concludes that it would have been obvious to have removed the cyclic polysiloxanes from the polymerized silicon polymer emulsions of Traver, by contacting the emulsion with the pervaporation membrane of McGlothlin because McGlothlin teaches that the pervaporation membrane method eliminates the drawbacks known to exist in conventional separation methods. Answer, page 5.

II. Appellants' Position

Applicants state that each of the applied references are discussed in the specification, and as noted in the specification, appellants state that Traver does not disclose pervaporation, Hatch does not teach stripping emulsions nor pervaporation, and McGlothlin fails to disclose pervaporation for removing volatile siloxanes from emulsions containing siloxane polymers. Brief, page 4.

Further, appellants argue that the unexpected results of their invention are that the viscosity of polysiloxanes is better controlled, as compared to Traver's technique, and no foam control is required in comparison to the technique used in Traver. Brief, page 4.

Applicants further argue that their technique provides improvement in the amount of volatile siloxanes which can be removed from an emulsion, as compared to the amount of volatile siloxanes removed in example 11 of Traver (we find that Example 11 of Traver removes about 6% of the volatiles). The amount removed according to appellants' technique is 26%, 54%, and 38%, respectively, as shown in appellants' Tables 1-3. Brief, page 4.

III. Our Analysis

The critical issue before us is whether it would have been obvious to have substituted the separation technique of Traver (or of Traver in view of Hatch), with the pervaporation technique of McGlothin.

We note that the prior art can be modified or combined to reject claims as prima facie obvious as long as one of ordinary skill in the art would have had a reasonable expectation of success. In re Merck Co. Inc., 800 F.2d 1091, 1097, 231 USPQ 375, 379 (Fed. Cir. 1986). See also Amgen, Inc. v. Chugai Pharm. Co., 927 F.2d 1200, 1209, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991).

In the instant case, The examiner also states that McGlothlin teaches a variety of polymerized emulsions, including silicones, from which the solvents can be removed by pervaporation membrane (col. 8, lines 35-68). The examiner also carefully explains that McGlothlin suggests removing a variety of solvents such as aliphatic, saturated, unsaturated and cyclic, including volatile hydrocarbons (col. 9, lines 1-10). Answer, page 4.

In view of this similarity between the kinds of polymers making up the emulsion of both McGlothlin and Traver, and between the kinds of solvents removed, we believe that one of ordinary skill in the art would have had a reasonable expectation of success of using the pervaporation technique of McGlothlin in the method of Traver.

On pages 5-6 of the Brief, appellants also argue that modifying the teachings of Traver would be inconsistent with the objectives and unexpected results of Traver. We find this argument unpersuasive for the reasons provided by the examiner

on pages 8-9 of the answer, and incorporate the examiner's position therein as our own.

In view of the above, we determine that the examiner has established a prima facie case of obviousness.

A prima facie case of obviousness is rebuttable by proof that the claimed invention possesses unexpectedly advantageous or superior properties. In re Papesch, 315 F.2d 381, 386-87, 137 USPQ 43, 47-48 (CCPA 1963).

On page 4 of the brief, appellants argue that their technique achieves unexpected results such as (1) the viscosity or drift of polysiloxanes can be better controlled and (2) no foam control is required. In response, the examiner states that Traver teaches that removal of volatile solvents to improve the film forming properties and obtain stable emulsions. The examiner also states that McGlothlin teaches that the use of pervaporation eliminates the foaming problem. Therefore, the examiner explains why such results are not unexpected.

Appellants also refer to their superior results set forth in Tables 1-3 (removal of 26%, 54%, and 38% of cyclics, respectively) versus the 6% removal amount achieved by Example 11 of Traver.

The examiner responds to this argument by stating that the comparison is unconvincing because it only compares results with Traver. We disagree with the examiner's reasoning here, but agree that the comparison is insufficient to rebut the prima facie case for the following reasons.

We note that it is not an unreasonable burden on appellants to require comparative examples relied on for nonobviousness to be truly comparative. In the instant case, the cause and effect sought to be proven is loss here in the welter of unfixed

variables. In re Dunn, 349 F.2d 433, 439, 146 USPQ 479, 483 (CCPA 1965). Our explanation follows.

Beginning at the bottom of page 4 of the brief, appellants argue that Example 11 of Traver, only 6 percent of the cyclics were removed whereas in appellants Tables 1-3, the amount of D4 that was removed was 26 percent, 54 percent, and 38 percent, respectively.

However, in order for such a comparison of Example 11 with Examples 1-3 of specification to be truly comparative, variables must be fixed. The emulsion used in example 11 of Traver is not identical to the each emulsion used in examples 1-3 of appellants' specification. Also, 1 pint of emulsion was treated in example 11 of Traver, whereas 2500 grams, 2600 grams, and 2700 grams, respectively, of emulsion, was treated in appellants' examples 1-3. Therefore, the cause and effect sought to be proven here is not clearly shown.

We therefore determine that appellants' rebuttal evidence is insufficient to overcome the prima facie case obviousness.

We therefore affirm the rejection.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

TERRY J. OWENS Administrative Patent Judge	)
BEVERLY A. PAWLIKOWSKI Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JAMES T. MOORE Administrative Patent Judge	)

BAP/sld

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BLVD 7TH FLOOR
LOS ANGELES, CA 90025